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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/456,027	12/03/1999	GAURAV BANGA	NAP-042	5872

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EXAMINER

CHU, GABRIEL L

ART UNIT	PAPER NUMBER
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2184

DATE MAILED: 08/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/456,027

Applicant(s)

BANGA, GAURAV

Examiner

Gabriel L. Chu

Art Unit

2184

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12 is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☒ Claim(s) 13-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4-6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 11 is objected to because of the following informalities: on line 6 of page 26, a reference is made to "said sets of parameters" wherein only "a set of parameters" is made reference to prior. For examination purposes, this claim is understood to mean, "A method as in claim 8, wherein said steps of attempting to communicate are performed using at least one hundred differing configurations of said set of parameters."
2. Claim 13 is objected to because of the following informalities: on line 18 of page 26, a reference is made to "said hardware and software configuration changes" wherein only "configuration changes" are made reference to prior. Further, claim 15 further limits "said configuration changes" to "hardware and software configuration changes". For the purposes of examination, claim 13's "said hardware and software configuration changes" is understood to be "said configuration changes". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim uses the term "otherwise" which does not sufficiently define the metes and bounds of the invention. It is unclear what other uses the file server is limited to. For the purposes of examination the claim is interpreted as, "A method as in claim 6, wherein said usage profile includes information regarding

whether use of said file server includes usage as an ISP, a development environment, or a mail server.”

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1, 2, 4, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6327677 to Garg et al. Referring to claim 1, Garg et al. disclose repeatedly reviewing monitoring statistics repeatedly reviewing monitoring statistics regarding operation of a file server, said steps of reviewing being performed at least as often as a selected time period (From the abstract, “A system is provided that monitors a network environment. The system collects recent data associated with operation of the network environment. The network environment is analyzed by comparing the collected data with historical data associated with the operation of the network environment. The system determines whether a problem or a potential problem exists based on the

analysis of the network environment. The historical data associated with the operation of the network environment is represented in multiple cognitive signatures. The system regularly updates the historical data to include the recently collected data.” Further, from line 50 of column 4, “For example, network monitor 22 can monitor the CPU performance, memory utilization, and application response time of workstations and servers contained in the network environment.”); processing said monitoring statistics using a diagnostic software module, in response to said steps of repeatedly reviewing (From line 3 of column 6, “Analysis module 38 receives collected data from data collection module 30, and receives one or more cognitive signatures from cognitive signature module 34. Analysis module 38 analyzes current performance or operation of the network environment by comparing the data collected via the network with the cognitive signatures, which represent past performance or operation of the network environment at similar times for similar devices, systems, or applications. Analysis module 38 may also compare the current data collected with one or more threshold values.”); whereby a result of said steps of processing includes a diagnosis of a behavior of said file server (From line 14 of column 6, “Based on the results of the analysis performed by analysis module 38, an alarm signal may be communicated to alarm generator 40.”).

Referring to claim 2, Garg et al. disclose said diagnostic software module includes a pattern matching system and a rule-based inference system (From line 19 of column 14, “By comparing the current data to the previous time period and the next time period, the procedure is able to identify a pattern or event that is shifted in time.”

Further, from line 66 of column 11, "Analyzer 110 receives current data 112, one or more cognitive signatures 114, one or more analysis rules 116, exception information 118, and signature correlation factors 120.").

Referring to claim 4, Garg et al. disclose said monitoring statistics include information gathered by at least one software module within an operating system of said file server (From line 14 of column 5, "Network monitor 22 includes a data collection module 30 that collects information from various devices or applications, such as information regarding network utilization (or device utilization), lost packets, response time, or number of errors. Data collection module 30 collects information regarding the operation or performance of the network environment on one or more communication links 31. Data collection module 30 can collect data from any number of networks and any number of network devices or applications.").

Referring to claims 6, Garg et al. disclose said steps of processing are responsive to a usage profile for said file server (From the abstract, "The network environment is analyzed by comparing the collected data with historical data associated with the operation of the network environment.").

6. Claims 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5193151 to Jain. Referring to claim 8, selecting a set of parameters for a first communication protocol (From line 1 of column 4, "In addition to the window size or packet rate parameters, a network protocol generally has other parameters, referred to as network tuning parameters, which may be adjusted to optimize network performance. Generally, these tuning parameters also affect network loading."); attempting to

communicate, between a point inside a file server and a point outside said file server, using a second communication protocol, said second communication protocol making use of said first communication protocol (From line 30 of column 3, "The network may consist of several subnetworks each of which may follow a different protocol. For example, the three routers shown in FIG. 1 may be parts of three different subnetworks following DNA, SNA, and TCP/IP, protocols, respectively."); reviewing a result of said steps of attempting to communicate (From the abstract, "A packet data communication system employs a congestion avoidance method in which each node measures the round-trip delay occurring when it sends data to a destination and receives an acknowledgement. This delay is measured for different load levels, and a comparison of these delays is used to determine whether to increase or decrease the load level."); and altering said set of parameters, in response to a result of said steps of reviewing (From the abstract, "The load level can be adjusted by adjusting the window size (number of packets sent in to the network) or by adjusting the packet rate (packets per unit time)." Further, from line 1 of column 4, "In addition to the window size or packet rate parameters, a network protocol generally has other parameters, referred to as network tuning parameters, which may be adjusted to optimize network performance. Generally, these tuning parameters also affect network loading.").

Referring to claim 10, Jain discloses steps of altering are performed repeatedly, whereby a resulting set of parameters allows substantial communication between said first point and said second point (From the abstract, "The objective is operation at the knee in the throughput vs. traffic curve, so that the data throughput is high and the

round trip delay is low." Further, from line 24 of column 10, "The "decision frequency" component of the procedure helps decide how often to change the window size.").

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6327677 to Garg et al. as applied to claim 1 above, and further in view of US 5920719 to Sutton et al. Referring to claim 3, although Garg et al. do not specifically disclose information gathered by a first and second software module at differing levels in an operating system, such a method of information gathering is known in the art. An example of this is shown by Sutton et al. From the abstract, "Writer entities register their intent to collect and store performance information in the registry by creating objects, via novel API calls, as nodes organized within the tree structure. Each object node of the registry is named according to a convention that identifies the type of performance data collected by that node. Each object node further represents a single data item having a single data type for collecting the performance and a reference to the actual storage location of its collected performance information." Further, from line 58 of column 5, "The reader entities 310 typically include user application processes 250a-c desirous of obtaining performance information from the registry 400, while the writer entities 320

include those processes along with operating system components, such as device drivers 224, configured to collect performance information and "write" that information to the registry." A person of ordinary skill in the art at the time of the invention would have been motivated to use performance information gathering in a method for monitoring a network because, from Garg et al.'s abstract, "The system collects recent data associated with operation of the network environment. The network environment is analyzed by comparing the collected data with historical data associated with the operation of the network environment."

9. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6327677 to Garg et al. Garg et al. disclose that information can be collected at regular intervals, from line 43 of column 6, "Information can be collected from the various network devices and applications at regular time intervals, such as every five minutes. The data collection module maintains a table or other collection of information to identify the various network devices and applications from which data is collected. For each network device, the table identifies the parameters or performance data to be requested and the time interval between requests. Thus, the data collected from the network can be selective with respect to the network devices, applications, interfaces or communication ports within a particular device, and with respect to polling time intervals." Although Garg et al. does not specifically disclose that such an interval can be less than 10 seconds, Garg et al. do disclose that such an interval is a matter of design, "Thus, the data collected from the network can be selective with respect to the network devices, applications, interfaces or communication ports within a particular

device, and with respect to polling time intervals.”

Referring to claim 7, although Garg et al. do not specifically disclose said usage profile includes information regarding whether use of said file server includes usage as an ISP, a development environment, or a mail server, such uses for a file server are well known in the art. Examiner takes official notice for using a file server as a mail server (wherein a file is understood to be a basic unit of storage). A person of ordinary skill in the art at the time of the invention would have been motivated to monitor a file server used as a mail server, and thus create a usage profile in the form of a historical data, because, from the abstract, there is a need to determine “whether a problem or a potential problem exists based on the analysis of the network environment”.

10. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5193151 to Jain. Referring to claim 9, although Jain does not specifically disclose that the steps of altering are performed at least as often as a selected time period of less than ten seconds, Jain does disclose a decision frequency component to help decide how often to change the window size. From line 24 of column 10, “The “decision frequency” component of the procedure helps decide how often to change the window size. Changing too often leads to unnecessary oscillations, whereas changing infrequently leads to a system that takes too long to adapt. According to general system control theory, the optimal control frequency depends upon the feedback delay-- the time between applying a control (change window size) and getting feedback from the network corresponding to this control. In a computer network such as that of FIG. 1, it takes one round-trip delay to affect the control, that is, for the new window to take

effect, and another round-trip delay to get the resulting change fed back from the network to the node which made the change. The operation of the congestion avoidance system is illustrated in FIG. 3, which depicts the flow of data packets and acknowledgements over time. In FIG. 3, prior to time $t=0$ the window size W is $W_{\text{sub}.0}$ (in the illustration, $W_{\text{sub}.0} = 2$ packets), and at $t=0$ the window size is changed to $W_{\text{sub}.1}$ (in the illustration, $W_{\text{sub}.1} = 3$ packets). Beginning at $t=0$, three packets are sent, and beginning at $t=D_{\text{sub}.0}$ the acknowledgements for these three packets begin to arrive at the source node. At time $t=D_{\text{sub}.0} + D_{\text{sub}.1}$ the acknowledgements for the three packets sent beginning at time $t=D_{\text{sub}.0}$ start to arrive. The delay experienced by a packet is a function of the window size used before the packet is sent. The delay $D_{\text{sub}.0}$ is a function of $W_{\text{sub}.0}$, and the delay $D_{\text{sub}.1}$ is a function of $W_{\text{sub}.1}$. This, therefore, leads to the conclusion that windows be adjusted once every two round-trip delays (two window turns) and that only the feedback signals received in the most recent cycle be used in window adjustment." The actual time period is a matter of design.

Referring to claim 11, Jain discloses the steps of attempting to communicate are performed by adjusting a plurality of parameters (From line 1 of column 4, "In addition to the window size or packet rate parameters, a network protocol generally has other parameters, referred to as network tuning parameters, which may be adjusted to optimize network performance. Generally, these tuning parameters also affect network loading."). Although Jain does not specifically disclose using at least one hundred different configurations for the set of parameters, however Jain clearly shows different

configurations for a set of parameters (From the abstract, "The load level can be adjusted by adjusting the window size or by adjusting the packet rate." Further, from line 64 of column 9, "Thus, if the window has to be increased, we do so additively... Thus, if the window has to be increased, we do so additively"). The actual number of configurations is a matter of design.

Allowable Subject Matter

11. Claim 12 is allowed.

12. The following is an examiner's statement of reasons for allowance: Referring to claim 12, the prior art does not teach or fairly suggest imposing combined constraints on diagnosis of possible errors in response to known logical coupling between monitoring statistics gathered at multiple logical levels of software modules within a file server; chaining the constraints from multiple logical levels together, limiting the number of possible errors deduced as possible from the various monitoring statistics.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

13. Claims 13-15 are objected to as having objectionable matter, but would be allowable if rewritten to overcome the objectionable matter. Referring to claims 13-15, the prior art does not teach or fairly suggest relating the timing of tracked configuration changes to a file server and relating the changes to known monitoring statistics and

determining, in response to tracking and relating, a configuration change most likely to be responsible for an error or other failure in the file server.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

JP403131143A to Haseyama et al.

"Auto-Negotiation" by Miller et al.

US 5109350 to Henwood et al.

US 5485574 to Bolosky et al.

US 5506955 to Chen et al.

US 5664106 to Caccavale

US 5699350 to Kraslavsky

US 5704036 to Brownmiller et al.

US 5745669 to Hugard et al.

US 6072777 to Bencheck et al.

US 6181700 to Doi

US 6295611 to Connor et al.

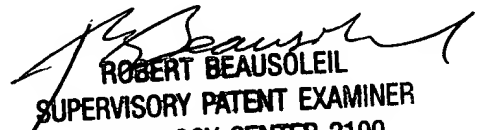
US 6405327 to Sipple et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gabriel L. Chu whose telephone number is (703) 308-7298. The examiner can normally be reached on weekdays with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W. Beausoliel, Jr. can be reached on (703) 305-9713. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

gc
July 20, 2002


ROBERT BEAUSOLEIL
SUPERVISORY PATENT EXAMINER
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